What is claimed is:

1. A method for identifying an optical fiber, comprising:

imparting a time-varying modulation onto an optical signal propagating in said optical fiber; and

detecting the presence of said imparted time-varying modulation to identify said optical fiber;

wherein said imparting and detecting do not interrupt the propagation of said optical signal along said optical fiber.

2. The method of claim 1, wherein said time-varying modulation is imparted on said optical signal by varying a property of said optical fiber as a function of time.

3. The method of claim 2, wherein a curvature of at least a portion of said optical fiber is varied as a function of time such that a time-varying loss of power is generated in said propagating optical signal.

4. The method of claim 3, wherein the curvature of said optical fiber is varied by vibrating at least a portion of said optical fiber.

5. The method of claim 4, wherein an amplitude of said vibration is small compared to the average power of said propagating optical signal such that said propagating optical signal is minimally affected.

6 The method of claim 2, wherein a birefringence of at least a portion of said optical fiber is varied as a function of time such that a polarization of said propagating optical signal is varied as a function of time.

7. The method of claim 6 wherein the birefringence of said optical fiber is varied via a time-varying magnetic field.

8. The method of claim 6, wherein the birefringence of said optical fiber is varied via a time-varying electric field.

9. The method of claim 1, wherein said time-varying modulation is imparted on said optical signal by varying a frequency of said propagating optical signal is varied as a function of time.

10. The method of claim 9, wherein the frequency of said propagating optical signal is varied as a function of time through time-varying non-linear interactions.

11. The method of claim 10, wherein said time-varying non-linear interactions are created through the interaction of acoustic waves with said propagating optical signal in said optical fiber.

12. The method of claim 1, wherein said time-varying modulation is imparted on said optical signal by a source of said optical signal.

13. The method of claim 12, wherein said time-varying modulation is imparted on said optical signal at an intermediate point between optical fibers in a fiber path.

14. The method of claim 1, further comprising bending said optical fiber such that light is scattered out of said fiber to enable said detecting.

15. An apparatus for identifying an optical fiber, comprising:

at least one modulating device for imparting a time-varying modulation onto an optical signal propagating in said optical fiber;

at least one fiber bending device for bending said optical fiber such that at least a portion of the optical signal is scattered out of said optical fiber; and

at least one detector, said detector receiving the scattered portion of the optical signal for detecting the presence of said imparted time-varying modulation to identify said optical fiber.

16. The apparatus of claim 15, wherein said imparting and detecting do not interrupt the propagation of said optical signal along said optical fiber.

17. The apparatus of claim 15, wherein said optical fiber comprises a plurality of interconnected optical fibers.

18. The apparatus of claim 15, further comprising a control unit, said control unit comprising a memory for storing information and program instructions and a processor for executing said instructions to configure the apparatus to perform the steps of:

imparting a time-varying modulation onto the optical signal propagating in said optical fiber; and

detecting the presence of said imparted time-varying modulation to identify said optical fiber.

19. The apparatus of claim 18, wherein said control unit is further adapted to cause a source of said optical signal to impart a time-varying modulation onto said optical signal.

20. The apparatus of claim 15, wherein said at least one modulating device comprises a transmitter head and said bending device and said detector comprise a receiver head.

21. The apparatus of claim 20, wherein said transmitter head further comprises a bending device and a detector and said receiver head further comprises a modulating device.

22. The apparatus of claim 15, wherein said modulating device comprises a vibrating piston and said vibrating piston varies the curvature of at least a portion of said optical fiber as a function of time such that a time-varying loss of power is generated in said propagating optical signal.

23. The apparatus of claim 15, wherein said modulating device comprises a piezo-electric transducer and said piezo-electric transducer varies the curvature of at least a portion of said optical fiber as a function of time such

that a time-varying loss of power is generated in said propagating optical signal.

24. The apparatus of claim 15, wherein said fiber bending device is adjustable for varying the radius of the bend on said optical fiber.

25. The apparatus of claim 15, wherein said fiber bending device comprises at least one anvil.

26. The apparatus of claim 15, further comprising at least one lightguide for guiding the scattered portion of the optical signal to said at least one detector.

27. The apparatus of claim 26, wherein said lightguide comprises a plexiglass lightguide.

28. The apparatus of claim 15, wherein said modulating device comprises a means for introducing a varying magnetic field and said means for introducing a varying magnetic field varies the polarization of said propagating optical signal as a function of time by varying the birefringence of said optical fiber as a function of time.

29. The apparatus of claim 15, wherein said means for introducing a varying magnetic field comprises a solenoid.

30. The apparatus of claim 28, wherein said detector further comprises a polarizer.

31. The apparatus of claim 15, wherein said modulating device comprises a means for varying the frequency of said propagating optical signal as a function of time through non-linear interactions.

32. The apparatus of claim 31, wherein said means for varying the frequency of said propagating optical signal as a function of time comprises a means for introducing acoustic waves and said means for introducing acoustic

waves varies the frequency of said propagating optical signal as a function of time through non-linear interactions of said acoustic waves and said propagating optical signal.

33. The apparatus of claim 31, wherein said means for varying the frequency of said propagating optical signal as a function of time comprises an acoustic horn.

34. The apparatus of claim 15, further comprising at least a second detector for detecting said time-varying modulation near the point of modulation such that a subsequent downstream detection of said modulation may be compared to the modulation detected near the point of modulation for the identification of said optical fiber.

35. The apparatus of claim 15, wherein said apparatus is implemented to verify communications between at least two points in a passive optical network.

36. An apparatus for identifying an optical fiber, comprising:

a means for imparting a time-varying modulation onto an optical signal propagating in said optical fiber;

a means for bending said optical fiber such that at least a portion of the optical signal is scattered out of said optical fiber; and

a means for detecting the presence of said imparted time-varying modulation to identify said optical fiber.

37. The apparatus of claim 36, further comprising:

a means for guiding the scattered portion of said optical signal to said means for detecting.

38. A system for identifying at least some of a plurality of optical fibers, comprising:

a plurality of fiber bending devices, each of said devices connected to

a respective one of said optical fibers for bending said respective optical fiber such that at least a portion of a respective optical signal is scattered out of a respective optical fiber; and

at least one detector, said detector receiving the scattered portion of a respective optical signal from a respective optical fiber for detecting the presence of a respective imparted time-varying modulation to identify said optical fibers.

39. The system of claim 38, wherein said respective time-varying modulation is imparted on each of said respective optical signals by a respective transmitter.

40. The system of claim 38, further comprising a plurality of modulating devices, each of said devices acting on a respective one of said optical fibers for imparting said time-varying modulation onto a respective optical signal propagating in a respective optical fiber.

41. The system of claim 38, further comprising control unit, said control unit comprising a memory for storing information and program instructions and a processor for executing said instructions to control the components of said system to configure the system to perform the steps of:

imparting a time-varying modulation onto a respective optical signal propagating in a respective optical fiber; and

detecting the presence of a respective imparted time-varying modulation to identify said optical fibers.

42. The system of claim 41, wherein said control unit generates a control signal for causing a respective transmitter to impart a time-varying modulation on respective optical signals to be propagated via said plurality of optical fibers.

43. The system of claim 38, wherein said system comprises a plurality of detectors, each of said detectors receiving the scattered portion of a respective optical signal from a respective optical fiber.